

IN THE CLAIMS

Please amend the following claims:

21. Cancelled

22. (Amended) A hydraulic brake system for a vehicle comprising:

wheel brakes for four wheels, in which the wheels are distributed with a first and second wheel brake on a first vehicle axle and a third and a fourth wheel brake on a second vehicle axle;

a normal hydraulic energy source, having electrically controllable brake valve devices disposed between said energy source and said wheel brakes;

a brake pedal;

a sensor generating a first signal indicative of the position of said brake pedal;

a second sensor generating a second signal indicative of the force exerted by a driver on said brake pedal;

a master cylinder supplying two brake circuits, said master cylinder being actuated by said brake pedal and being intended for carrying out a backup brake operation by muscle-powered energy via said brake pedal, each brake circuit being in fluid communication with at least one of said wheel brakes;

a respective normally open isolation valve being disposed between said master cylinder and said wheel brakes in each of said two brake circuits, each of said isolation valves being switched into a closed position when said wheel brakes are supplied with fluid from said normal hydraulic energy source;

a respective fluid separator unit being interposed between each of said first and second wheel brakes of said first vehicle axle and an associated one of the electrically controllable brake valve devices, said fluid separator units having movable components forming a pressure boundary that enables said normal source to selectively act upon said vehicle brake via a portion of said backup source, said first and second wheel brakes being connected to a respective one of said isolation valves associated with said two brake circuits of said master cylinder; and

a control unit for controlling said normal hydraulic energy source and said isolation valves, said control unit responding as a blended function of both said first signal and said second signal, with the contribution of the second signal relative to the first signal generally varying as a function of the first signal.

23. (Amended) The hydraulic brake system of Claim 18, further comprising:
wheel brakes for two wheels, in which the wheels are distributed at each end of
a front vehicle axle;

a normal source of pressurized hydraulic brake fluid, having electrically
controllable brake valve devices disposed between said normal source and said wheel
brakes,

a master cylinder comprising at least a portion of said brake system actuator
and supplying two brake circuits, said master cylinder being actuated by said brake
pedal and being intended for carrying out a backup brake operation by muscle-
powered energy via said brake pedal, each of said brake circuits being in fluid
communication with a respective one of said wheel brakes; and

a respective normally open isolation valve being disposed between said master
cylinder and said respective one of said wheel brakes in each brake circuit, each of
said isolation valves being electrically switched into a closed position when said wheel
brakes are supplied with fluid from said normal source, and wherein at least the
electrically controllable brake valve devices are controlled by said control unit.

25. (Amended) The hydraulic brake system of Claim 18, further comprising:
wheel brakes for two wheels, in which the wheels are distributed at each end of a front vehicle axle;
a hydraulic fluid reservoir;
a normal source of pressurized hydraulic brake fluid, having a motor-driven pump for pumping hydraulic brake fluid from said reservoir;
a master cylinder comprising at least a portion of said brake system actuator and supplying two brake circuits, said master cylinder being actuated by said brake pedal and being intended for carrying out a backup brake operation by muscle-powered energy via said brake pedal, each of said brake circuits being in fluid communication with a respective one of said wheel brakes; and
a respective electrically controllable brake valve device associated with each of said wheel brakes, said electrically controllable brake valve devices being arranged to block a respective flow path from said normal source to said wheel brakes and to open a respective flow path from said wheel brakes to said reservoir when no braking is being demanded.

36. (Amended) A brake system comprising:

an axle of a vehicle;

a first wheel brake mounted on said axle;

a second wheel brake mounted on said axle;

a normal source of pressurized hydraulic brake fluid adapted to selectively supply hydraulic brake fluid to said first wheel brake and said second wheel brake;

a backup source of pressurized hydraulic brake fluid comprising a master cylinder;

a first backup fluid conduit extending between said master cylinder and said first wheel brake to selectively provide fluid communication between said backup source and said first wheel brake;

a second backup fluid conduit extending between said master cylinder and said second wheel brake to selectively provide fluid communication between said backup source and said second wheel brake; and

a respective valve arrangement being disposed between said master cylinder and said wheel brakes in each of said first backup fluid conduit and said second backup fluid conduit and having a movable component forming a pressure boundary which enables said normal source of pressurized hydraulic brake fluid to selectively act upon said respective vehicle brakes via a portion of said backup source.

37. (Amended) A hydraulic brake system for a vehicle comprising:
wheel brakes for four wheels, in which the wheels are distributed with a first
and second wheel brake on a first vehicle axle and a third and a fourth wheel brake on
a second vehicle axle;
a normal hydraulic energy source,
electrically controllable brake valve devices disposed between said energy
source and said wheel brakes;
a brake pedal;
a first brake system sensor that is actuated by said brake pedal, for carrying out
brake operations by operation of the electrically controllable brake valve devices;
a master cylinder actuated by said brake pedal and intended for carrying out a
backup brake operation by muscle-powered energy via said brake pedal,
two brake circuits supplied by said master cylinder, each brake circuit being in
fluid communication with at least one of said wheel brakes;
a respective normally open isolation valve being disposed between said master
cylinder and said wheel brakes in each of said two brake circuits, each of said isolation
valves being switched into a closed position when said wheel brakes are supplied with
fluid from said normal hydraulic energy source, and wherein at least said isolation
valves are controlled by a control unit; and
a respective fluid separator unit being interposed between each of said first and
second wheel brakes of said first vehicle axle and an associated one of the electrically
controllable brake valve devices, said first and second wheel brakes being connected
to a respective one of said isolation valves associated with said two brake circuits of
said master cylinder, said fluid separator units having movable components that
cooperate to enable said normal source of pressurized hydraulic brake fluid to
selectively act upon said respective vehicle brakes via a portion of said backup source.

38. (Amended) A hydraulic brake system for a vehicle comprising:
wheel brakes for two wheels, in which the wheels are distributed at each end of a front vehicle axle;
a normal source of pressurized hydraulic brake fluid, having electrically controllable brake valve devices disposed between said normal source and said wheel brakes;
a brake pedal;
a master cylinder supplying two brake circuits, said master cylinder being actuated by said brake pedal and being intended for carrying out a backup brake operation by muscle-powered energy via said brake pedal, each of said brake circuits being in fluid communication with a respective one of said wheel brakes; and
a respective normally open isolation valve being disposed between said master cylinder and said respective one of said wheel brakes in each brake circuit, each of said isolation valves being electrically switched into a closed position when said wheel brakes are supplied with fluid from said normal source, and at least the electrically controllable brake valve devices being controlled by a control unit in response to a braking demand signal, each of said isolation valves having a movable component, said isolation valves cooperating with one another to form a pressure boundary that enables said normal source of pressurized hydraulic brake fluid to selectively act upon said vehicle brake via a portion of said backup source.

40. (Amended) A hydraulic brake system for a vehicle comprising:
wheel brakes for two wheels, in which the wheels are distributed at each end of
a front vehicle axle;
a hydraulic fluid reservoir;
a normal source of pressurized hydraulic brake fluid, having a motor-driven
pump for pumping hydraulic brake fluid from said reservoir;
a brake pedal;
a master cylinder supplying two brake circuits, said master cylinder being
actuated by said brake pedal and being intended for carrying out a backup brake
operation by muscle-powered energy via said brake pedal, each of said brake circuits
being in fluid communication with a respective one of said wheel brakes; and
a respective electrically controllable brake valve device associated with each of
said wheel brakes, said electrically controllable brake valve devices being arranged to
block a respective flow path from said normal source to said wheel brakes and to open
a respective flow path from said wheel brakes to said reservoir when no braking is
being demanded, said respective valve devices cooperating to form a fluid separator
having a movable pressure boundary that enables said normal source of pressurized
hydraulic brake fluid to selectively act upon said respective vehicle brakes via a
portion of said backup source.

Please add the following new claims:

41. The hydraulic brake system of Claim 31, wherein said normal source is under the control of said control unit.

42. A brake system comprising:

a vehicle brake;

a normal fluid source supplying a first fluid;

a backup fluid source supplying a second fluid;

a structure for receiving said first fluid and said second fluid for operation of the vehicle and having a movable pressure boundary for preventing intermixing of said first fluid and said second fluid while said vehicle brake is operating;

a first sensor generating a first output signal;

a second sensor generating a second output signal;

a control unit responsive to a demand signal for controlling the operation of said vehicle brake, said demand signal being generated as a blended function of both said first output signal and said second output signal.

43. The brake system of Claim 42, wherein said movable pressure boundary comprises a piston.

44. The brake system of Claim 42, further including a brake pedal, and wherein said demand signal is blended as a function of the position of said brake pedal.

45. The brake system of Claim 44, wherein said first output signal is representative of the position of said brake pedal, and the relative contributions of the first output signal and the second output signal to the demand signal is blended as a function of the position of said brake pedal.

46. The brake system of Claim 42, wherein said first output signal and said second output signal work in accordance with different principles and generate different output signals.

47. The brake system of Claim 42, wherein said structure is a fluid separator.

STATUS OF CLAIMS AND EXPLANATION OF SUPPORT

Applicants note that the Amendment filed on May 4, 2005 was not entered by the Examiner.

Claims 1 through 20: Pending (and stand allowed in their original un-amended form).

Claim 21: Cancelled.

Claim 22: Pending (amended for the first time in this Amendment). Claim 22 was amended from the previously presented version of Claim 22 as follows, where underlining indicates additions, and strike-through indicates deletions:

22. A hydraulic brake system for a vehicle comprising:

wheel brakes for four wheels, in which the wheels are distributed with a first and second wheel brake on a first vehicle axle and a third and a fourth wheel brake on a second vehicle axle;

a normal hydraulic energy source, having electrically controllable brake valve devices disposed between said energy source and said wheel brakes;

a brake pedal;

a sensor generating a first signal indicative of the position of said brake pedal;

a second sensor generating a second signal indicative of the force exerted by a driver on said brake pedal;

~~a first brake system sensor that is actuated by said brake pedal, for carrying out brake operations by operation of the electrically controllable brake valve devices;~~

a master cylinder supplying two brake circuits, said master cylinder being actuated by said brake pedal and being intended for carrying out a backup brake operation by muscle-powered energy via said brake pedal, each brake circuit being in fluid communication with at least one of said wheel brakes;

a respective normally open isolation valve being disposed between said master cylinder and said wheel brakes in each of said two brake circuits, each of said isolation valves being switched into a closed position when said wheel brakes are supplied with fluid from said normal hydraulic energy source, ~~and wherein at least the electrically controllable brake valve devices are controlled by a control unit; and~~

a respective fluid separator unit being interposed between each of said first and second wheel brakes of said first vehicle axle and an associated one of the electrically controllable brake valve devices, said fluid separator units having movable components forming a pressure boundary that enables said normal source to selectively act upon said vehicle brake via a portion of said backup source, said first and second wheel brakes being connected to a respective one of said isolation valves associated with said two brake circuits of said master cylinder; and

a control unit for controlling said normal hydraulic energy source and said isolation valves, said control unit responding as a blended function of both said first signal and said second signal, with the contribution of the second signal relative to the first signal generally varying as a function of the first signal.

Support for this amendment is found in Cols. 5 through 12 of the Specification as filed.

Claim 23: Pending (amended for the first time in this Amendment). This claim was amended to depend from Claim 18, with the brake pedal, master cylinder and the normally open isolation valve claim elements amended to clarify the claim in light of the new dependent status. Support for these amendments can be found in at least Figs. 1 and 10 and in Cols. 5 through 12 of the Specification as filed.

Claim 24: Pending and un-amended.

Claim 25: Pending (amended for the first time in this Amendment). This claim was amended to depend from Claim 18, with the brake pedal and master cylinder claim elements amended to clarify the claim in light of the new dependent status. Support for these amendments can be found in at least Figs. 1 and 10 and in Cols. 5 through 12 of the Specification as filed.

Claims 26 through 35: Pending (and stand allowed in their original un-amended form).

Claim 36: Pending (amended for the first time in this Amendment). This claim was amended to include the limitation "a respective valve arrangement ... having a movable component forming a pressure boundary which enables said normal source of pressurized hydraulic brake fluid to selectively act upon said respective vehicle brakes via a portion of said backup source." Support for these amendments can be found in at least Figs. 1 and 10 and in Cols. 5 through 12 of the Specification as filed.

Claim 37: Pending (amended for the first time in this Amendment). Claim 37 was amended from the previously presented version of Claim 37 as follows, where underlining indicates additions, and strike-through indicates deletions:

37. (Amended) A hydraulic brake system for a vehicle comprising:
wheel brakes for four wheels, in which the wheels are distributed with a
first and second wheel brake on a first vehicle axle and a third and a fourth
wheel brake on a second vehicle axle;
a normal hydraulic energy source, having
electrically controllable brake valve devices disposed between said
energy source and said wheel brakes;
a brake pedal;
a first brake system sensor that is actuated by said brake pedal, for
carrying out brake operations by operation of the electrically controllable brake
valve devices;
~~a master cylinder supplying two brake circuits, said master cylinder~~
~~being~~ actuated by said brake pedal and intended for carrying out a backup brake
operation by muscle-powered energy via said brake pedal,

two brake circuits supplied by said master cylinder, each brake circuit being in fluid communication with at least one of said wheel brakes;

a respective normally open isolation valve being disposed between said master cylinder and said wheel brakes in each of said two brake circuits, each of said isolation valves being switched into a closed position when said wheel brakes are supplied with fluid from said normal hydraulic energy source, and wherein at least the ~~electronically controllable brake valve devices said isolation valves~~ are controlled by a control unit; and

a respective fluid separator unit being interposed between each of said first and second wheel brakes of said first vehicle axle and an associated one of the electrically controllable brake valve devices, said first and second wheel brakes being connected to a respective one of said isolation valves associated with said two brake circuits of said master cylinder, said respective fluid separator units having movable components that enable enabling said normal source of pressurized hydraulic brake fluid to selectively act upon said respective vehicle brakes via a portion of said backup source.

Support for these amendments can be found in at least Figs. 1 and 10 and in Cols. 5 through 12 of the Specification as filed.

Claim 38: Pending (amended for the first time in this Amendment). This claim was amended to include the limitation "each of said isolation valves having a movable component, said isolation valves cooperating with one another to form a pressure boundary that enables said normal source of pressurized hydraulic brake fluid to selectively act upon said vehicle brake via a portion of said backup source." Support for these amendments can be found in at least Figs. 1 and 10 and in Cols. 5 through 12 of the Specification as filed.

Claim 39: Pending and un-amended.